

ABOUT THE REAL WORLD DESIGN CHALLENGE

Global competition is currently in a state of transformation. Many generations of hard work, innovation, ingenuity and a first-rate educational system have made the United States the world's technology leader. Maintaining this leadership will require continued investments in the nation's educational system. The RWDC provides students with the background and framework for competing effectively in a 21st century workforce through an innovative partnership involving government, private industry, and education.

WHAT TEACHERS GET

- » **Training:** Instructor led training and web-based training is provided in Design and Global Engineering.
- » **Science, Math, and Engineering Mentors:** Mentors are provided by Federal Laboratories & Centers, industry, and higher education.
- » **Real Problem:** The Challenge problem is defined by industry.
- » **Real Tools:** Industry donates \$1 million in professional engineering software to each teacher.
- » **Real Roles:** Student teams are built around real industry roles such as project manager, scientist, engineer, and community relations and marketing.
- » **Real Contributions:** Students contribute innovative solutions to real industry design problems.



REAL COACHING

A RWDC coach can be a formal classroom teacher or an adult advisor from an after school or informal learning program. Although having specific expertise in engineering principles or a degree in a STEM-related field may be helpful, teachers or coaches are not required to have a technical background to participate. Training is offered to teachers/coaches in how to use computer-aided design (CAD) software and other aspects of the program. Workshops help teachers/coaches understand the software and apply the tools to teach design and global engineering.

REAL MENTORS

Professional scientists and engineers from the National Laboratories, Federal Aviation Administration centers, industry, and higher education are available on the RWDC Web site for recruitment as mentors. These professionals provide guidance to students and support to teachers. They provide content knowledge and experience to supplement the teachers' expertise. Students are also assisted by the mentors who advise them on the principles and application of science, mathematics and engineering in development of their solutions to the challenge.

THIS YEAR'S CHALLENGE

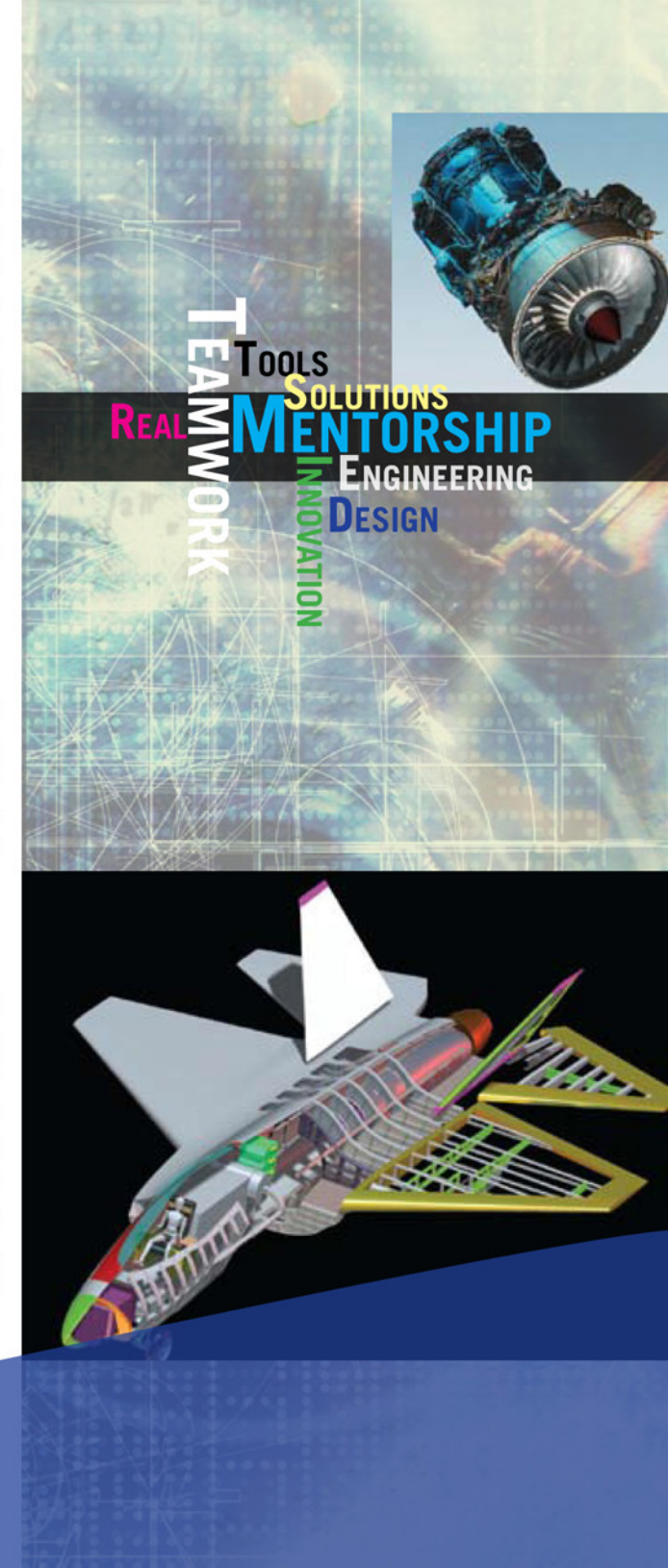
Each year, the state level challenge will present students with an opportunity to create solutions to a problem faced by one or more of our nation's leading industries. The 2010 state challenge will address fuel efficiency in aviation. Student teams will spend several months generating solutions to the challenge. Solutions to the challenge will be submitted in February 2010. A winning team from each participating state will be invited to compete in the RWDC national challenge. The U.S. Department of Energy will host the RWDC National Event in Washington, D.C., in March 2010. The top national winners will receive prizes, awards, and recognition from leaders in government, industry, and higher education.

STATE PARTICIPATION

Ten states participated in the FY2009 RWDC competition: Connecticut, Hawaii, Kansas, Massachusetts, Minnesota, Oklahoma, Pennsylvania, Vermont, Virginia, and Washington. We are currently recruiting additional states to participate in FY2010 and hope to have all 50 states participating by FY2011.

GET INVOLVED ON RWDC WEB SITE

Teachers: Click on "Teachers/Coaches" to get to the Teachers/Coaches page and the Team Registration page. **Mentors:** Professional engineers, scientists, and mathematicians may volunteer to be a mentor. Click on "Mentors," a description of mentor roles and responsibilities is provided. Mentor registration is done on-line. **States:** State participation is done through a partnership with the Governor's Office. States interested in participating in the RWDC should contact Dr. Ralph K. Coppola, Director of the Real World Design Challenge by e-mail at rcoppola@ptc.com or by phone at 703-298-6630.



Real World Design Challenge Web site:

<http://www.scied.science.doe.gov/rwdc/index.html>.

BUILDING AN INNOVATIVE WORKFORCE FOR THE 21ST CENTURY

The RWDC is a prime example of government, private industry, and educators working together to keep our workforce the best in the world. It aligns secondary education with technical workforce needs. Students learn innovation, creativity, and collaboration, using the expertise that industry and government have been perfecting for decades. This real world approach to learning allows students to experience a direct link between their efforts and the workplace. It also provides students with the potential to make a substantive contribution to a real problem facing industry.

REAL WORLD DESIGN CHALLENGE PARTNERS

Aerospace States Association; Appalachian Regional Commission; Build A Plane; Business Educational Partnerships Group, Inc.; Cessna Aircraft Company; Connecticut Center for Advanced Technology, Inc.; Department of Energy; Education Development Center; Federal Aviation Administration; Francis Tuttle Technology Center; Mentor Graphics; NASA; National Governors Association; National Society of Black Engineers; Office of Aerospace Development, Strategic Industries Division/DBEDT (Hawaii); Oklahoma Department of Career and Technology Education; Oklahoma State University; Parametric Technology Corporation; Pennsylvania Department of Education; Secondary Career & Technical Education (Wichita, Kansas); University of Oklahoma.

ADDITIONAL INFORMATION

<http://www.scied.science.doe.gov/rwdc/index.html>.

REAL TEAMWORK
TOOLS SOLUTIONS
MENTORSHIP
ENGINEERING
DESIGN
INNOVATION

► REAL WORLD DESIGN CHALLENGE

Students using REAL tools to solve REAL problems



WHAT IS THE REAL WORLD DESIGN CHALLENGE?

The Real World Design Challenge (RWDC) is a public-private partnership aimed at sustainably increasing the Science, Technology, Engineering, and Mathematics (STEM) workforce in the long term. The RWDC provides high school students in grades 9–12, the opportunity to work on real world engineering challenges in a collaborative, team-based environment applying the lessons of the classroom to the technical problems of the workplace. The partnership is dedicated to bringing professional tools and resources to students and providing real world engineering experiences in which they can apply science and mathematics principles. Each year, student teams are asked to address a real challenge that confronts our nation's industry.

The challenge is designed by professionals from industry, academia, and government. Students develop solutions and winners are announced at a state awards ceremony. Each state's winning team gets to compete at the national challenge event in Washington, D.C. at which they present their solution to the national challenge to a panel of judges and a national winner is chosen.

► Students using REAL tools to solve REAL problems.